

AUGUST, 1890.

The monthly meeting of this Society was held on Monday, August 12th. The President, His Excellency Sir R. G. C. Hamilton, took the chair.

NEW MEMBERS.

Mr. Thos. Whitelegge, F.L.S., Zoologist Australian Museum, was elected a corresponding member, and Mr. F. Chalk, barrister-at-law, a new member.

A FOSSIL TREE.

MR. JAMES BARNARD read a communication which he had received from Mr. S. H. Wintle in regard to a paper read by Mr. Barnard for him at the June meeting of this year, entitled "Notes on a Fossil Tree found beneath 100ft. of basalt at Richmond, Victoria." Mr. Wintle wrote as follows:—

"I find in the discussion which followed the reading of my remarks by the Vice-President, that Mr. C. H. Grant expressed an opinion that the condition of the wood afforded satisfactory evidence that the basaltic lava which entombed it could not have had a high temperature. A moment's reflection will show that such a conclusion is quite untenable. The degree of heat necessary for molten rock-matter, such as lava, to flow, is laid down by no less an authority on Seismology than Mallet to be from 1,900deg. to 2,000 deg. Fahr., a temperature sufficient to melt copper. Mr. Grant's opinion as to a low temperature of the basalt at the time it overflowed the tree was based, I presume, upon the fact that the wood displays no sign of being carbonised, or charred, beyond a slight trace at its superior surface at the point of contact with the once molten rock. This feature, I take it, is to be accounted for by the fact that the enveloping fluid lava by excluding the air would effectually prevent an access of oxygen to the wood; and further, that the surface of the lava-stream, which would come in contact with the tree first, is always cooler than the interior or the base of the stream. I also observe that Mr. Grant regards the basalt (a specimen of which accompanied the example of the fossil wood) as 'diorite,' according to the report referred to. With all due deference I would observe that this is erroneous. It is true basaltic lava of that kind known as Anamesite of Pleistocene Age, and not greenstone, which diorite proper is. The newer basalts, which in Victoria have filled up so extensively Miocene and Pliocene valleys, and river channels, are chiefly vesicular zeolitic *dolerites* and *Anamesites*, the former being well represented by the light coloured Malmsbury 'bluestone' so extensively employed in buildings in Melbourne."

MR. GRANT explained that he had only referred to the matter as a suppositious case, and that his remarks had been evidently misunderstood.

MR. R. M. JOHNSTON said he was not present when the paper was read, but he thought he knew something of the constitution of this fossil. In his work on Geology a section of the book was taken up in describing such fossil trees. From the description given he imagined that this fossil exactly corresponded with those found in the deep leads of Beaconsfield. From the appearance of those fossils it was quite possible that the wood was protected at one time by clay, which formed a protective envelope between it and the overflow of the basalt. The best specimens could be obtained in the railway cuttings at Breadalbane, where a perfect forest of the ancient vegetation of the Mesozoic period was entombed, and destroyed by the scoria and ashes and molten flows of matter from the volcanic eruptions at that time so prevalent in this and some other localities throughout Tasmania. It has been found by mineralogists that if basalt is thrown up by eruptive influence in a state of ashes, and if afterwards

chemical action takes place, it sometimes becomes perfectly crystalline, and as if it had been originally in a state of liquefaction. At Breadalbane they were seen in every possible stage. In no country in the world, so far as he was aware, was there exhibited the remains of this vegetation in such abundance in every stage as was to be found in Tasmania.

Mr. ALFRED J. TAYLOR said that judging from the remarks recently made by Baron Nordenskiöld before the Royal Swedish Society of Arts, it was possible that the wood referred to might have been covered by basalt without being charred. The Baron's remarks were as follows:—"The members of the Academy are aware of the fact that on several occasions I have given reasons which tell against the supposition that the layers of basalt have been formed through eruptions of glowing melted lava. Once in Greenland I saw a phenomenon which, if it had been fully investigated, would have been of great assistance in the solving of this question. Namely, I once met with a thick '*moja*' stream, which was slowly rolling down a steep headland on the north-eastern coast of the Nuorsoak Peninsula, and which seemed to come direct from the basalt mountains. I had great difficulty in crossing this stream, which consisted of a sticky substance. Only after returning home my attention was called to the fact that this substance when hard might probably form the basaltic layers." From these remarks it would be seen that the problem referring to the formation of basalt had not been successfully settled, and that it was quite possible for Mr. Wintle to have been perfectly right in the conclusions he had arrived at with regard to the piece of wood under discussion.

Rev. J. B. W. WOOLLNOUGH said that when he was in Iceland, where there was only one living tree, he not unfrequently came across partially burned wood which had been exposed to great heat and overflows of lava, which had been protected evidently by some surrounding substance which had hindered the lava from influencing it as otherwise it would have done. In some cases the wood was only slightly charred, and it seemed to have lost almost completely its weight. When a piece was taken up in the hand it seemed as if all the weight had been pressed out of it. One piece of wood to his knowledge had been under a very thick piece of lava.

ANTARCTIC EXPLORATION.

The following correspondence from the Hon. Secretary (Mr. A. C. Macdonald) of the Royal Geographical Society of Australasia, was read by the Secretary (Mr. A. Morton) :—

“ Royal Geographical Society of Australasia,
 “ Society Rooms,
 “ Collins-street W.,
 “ Melbourne, July 30, 1890.

“DEAR SIR,—I am directed by the Antarctic Committee to inform you that at a meeting of the committee held at the Melbourne Observatory on the morning of Tuesday, the 29th July inst., the following resolutions were passed :—

1. "The Antarctic Committee learn with pleasure the magnificent offer of Baron Oscar Dickson to defray one half the cost of an expedition to explore the Antarctic region, provided that the other half, not exceeding £5,000, be contributed by the Australasian colonies, Baron Nordenskiöld to take command of the expedition. This committee cordially desires to accept the offer, and hereby resolves to appeal to the general public throughout the Australasian colonies for subscriptions towards the movement.

2. "That a copy of the foregoing resolutions be forwarded to the Royal Societies of Queensland, New South Wales, Tasmania, and Queensland branches of the Royal Geographical Society of Australasia, soliciting their co-operation.

"The Consul-General for Sweden and Norway, who was present at the meeting, kindly promised to communicate with Barons Nordenskiöld and Dickson, and to transmit copies of the report of the meeting. A committee was formed to prepare resolutions to be submitted at a public meeting to be held during the month of August. Arrangements will be made for delivering one or more public lectures. Already several handsome subscriptions (two of £100 each) have been promised, and the committee feel satisfied that if a reasonable effort is made the required amount will easily be raised.

"In conclusion, the committee respectfully request your cordial co-operation in a movement which is essentially Australian and National, and which should certainly result in the acquisition of knowledge to the world, and the prospective possibilities of profitable investment.

"A. C. MACDONALD,
"Hon. Sec. and Treasurer.

"The Secretary,
"Royal Society of Tasmania."

[Telegram.] "Melbourne, July, 31, 1890.

"The Secretary, Royal Society of Tasmania, Hobart.

"At a meeting of the Australian Antarctic Committee held 29th inst., Baron Oscar Dickson's munificent offer to defray half the cost of an expedition under the command of Baron Nordenskiöld, to explore the Antarctic regions, conditionally that the Australian colonies subscribe the other half not exceeding £5,000, the offer was cordially accepted, and it was unanimously resolved to appeal to the general public alone (not to Government) for subscriptions in aid of the object. Two members of the Royal Geographical Society of Australasia (Messrs. J. S. Gotch and Professor Kernot), subscribed £100 each, and several other sums have also been promised. Public meetings and lectures are being arranged. His Excellency the Earl of Hopetoun will preside at the inaugural lecture to be held early in August. The Consul-General for Sweden has undertaken to communicate with Barons Dickson and Nordenskiöld. The Antarctic Committee respectfully requests your co-operation, and suggests the formation of an Antarctic Committee composed of members of your Society and other leading commercial gentlemen in Hobart. Letters embodying resolutions passed here on 29th inst. and form of subscription list by post.

"A. C. MACDONALD,
"Hon. Sec. and Treasurer, R.G.S. of Aust."

HIS EXCELLENCY said: It seems to me that the objects to be gained by Antarctic exploration are so numerous and important, that it seems to be strange that it should have been so long delayed. When we consider that we know almost nothing practically of these regions, that a chart has yet to be made of them, showing which points and coast lines are land and which are merely floating ice, and that the geology, botany, and natural history of this great region are all at present a blank, I cannot conceive of any more worthy field for the explorer from a scientific point of view. Moreover, until we know something of this immense area, we must remain in ignorance of the laws which govern the climates of the globe, and more particularly of the vast continent of Australia. Then again, to us in Tasmania, the nearest of the Australian colonies to these regions, the commercial aspects of the exploration may prove important, for it is quite conceivable that it might lead to a revival of the great whaling industry which was once a staple industry of Tasmania. One feels a certain amount of regret that this exploration should not have been undertaken under the British flag, seeing that the interests of the British Empire in it are certainly greater than those of any other country, but when such a noble offer has been made as that

of Baron Dickson, and the opportunity arises of having the expedition under a man like Baron Nordenskiöld, I think the least we can do here in Australia is to enter heart and soul into the project, and assist it to the best of our ability. I observe that in Victoria it is proposed to raise the funds necessary by private subscriptions, and not by a grant from Parliament. So long as the money is forthcoming it does not much matter how it is collected, but on this point it would be desirable to ascertain what the views of the members of this Society are. We did all we could to push forward the last proposed expedition, which fell through unfortunately, and I feel sure that now this Society will do all it can to further the present one. I judge from the very moderate sum of £10,000, which is its estimated cost, that it can only be a preliminary and experimental one, but I have no doubt that if it brings back important information, as no doubt it will, that further expeditions will in future be undertaken to set at rest the many scientific questions which are at present locked up in this great unexplored region.

BISHOP MONTGOMERY said that before he left London he had expressed the hope that he might yet have the South Pole in his diocese. (Laughter.) This expedition was important not only from a commercial point of view, but also because it was desirable to gain a clear knowledge. We were necessarily called upon to ascertain all about our own Hemisphere, of which Tasmania might hope one day to be mistress.

Mr. JAMES BARNARD alluded to the previous movement in favour of this object when a committee was formed in 1886. He surmised from a communication he had received that that committee was now merged in or superseded by the present movement. He also considered it a matter of regret that England had not taken part in the expedition, but inasmuch as science knew no nationality, it was, from a scientific point of view, a matter of indifference whether England took her share or did not do so. With regard to subscriptions, he thought that the Government should be approached to contribute the colony's share. It seemed to him that from an expedition of this description there was no individual benefit to be derived, the benefit would be a national one, and looking upon the matter in this light he considered that the Government should be approached to give the approximate share justly due by Tasmania as a colony largely interested in the expedition.

Sir LAMBERT DOBSON said it seemed to him that this must be a question of interest to everyone who had any regard for science. The world had now left comparatively little *terra incognita* that had not been penetrated by the explorer, and this was the only remnant of undiscovered region that concerned us. If there was any profit to come out of the expedition, or any climatic benefit, doubtless Hobart would derive the advantage. Hobart was the starting point of the last Antarctic Expedition, and he remembered the sailing of the Erebus and Terror. They had also the work of Lieutenant Hooker remaining amongst them as a standard work, and the meteorological observatory established here had proved of benefit. There was a general desire to see the far South explored, to find out if there were any fresh discoveries to be made, and he thought, whether the money came from individuals or the Government, they would all be glad to see Tasmania take part in the expedition.

Mr. A. MORTON said that in 1886 the late Mr. Sprent read a paper on this subject, and it was then contended that there should be a combination of the colonies in carrying out the expedition. The project fell through at that time until now, when it was again revived. He called attention to the footnote in the circular—"Subscriptions will be returned in full in the event of the expedition failing to start from Hobson's Bay"—and said he had written for further information on the point, as to whether the same object might not be attained by the

expedition starting from Hobart or New Zealand if it was found more advantageous to do so. In 1886 Victoria led the way in this matter, followed by Tasmania, which was very enthusiastic, a deputation waiting on the Premier; afterwards New South Wales took the matter up. On this occasion Victoria again took first place, and he was glad to think that Tasmania was again second. He thought that on such an occasion the words of the late Mr. Sprent were worthy of recollection when he said, "It would be a standing disgrace to Australia if she took no part in the exploration of the seas that wash her own coast." (Hear, hear.)

Mr. ALFRED J. TAYLOR said it seemed to him that if they wished to make the history of the future, they could not do it in a better way than by supporting the expedition now under consideration. He had received several communications from the Secretary of the Royal Geographical Society of Australasia on the subject, and he trusted that something practical would be done by the appointment of a committee in Hobart.

Mr. CURZON ALLPORT said that this was a question which would involve considerable discussion, and he thought, in view of the other papers to be read that evening, that it would be as well if this subject was adjourned for future discussion. While agreeing with the last speaker as to the appointment of a committee, he totally disagreed with the proposal to make the paltry sum required a matter for the Government. The object of the Royal Society was to deal with subjects of this sort, and he hoped that they did not require to go hat in hand to the Government for the necessary sum. He considered that they would not be doing their duty if they followed the course proposed. He hoped they would be prepared to contribute a substantial amount to this object, and speaking for the Photographic Art Association, he had no doubt but that they would join in the contribution. Reference had been made to the Antarctic regions as a place of great mystery, but already they had been partially explored, and at next meeting he promised to produce a series of photographs of those regions, not taken by the *Eurebus* and *Terror* expedition, but by the officers of some French discovery ships. He had no doubt they would be of interest to the members. (Applause.)

Mr. T. D. STEPHENS seconded, and hoped the Council in the *interim* would continue its work, and place before the Society a practical scheme at next meeting.

The motion was agreed to, and the discussion adjourned.

Mr. A. Montgomery, M.A., Government Geologist, read a Paper, entitled "Notes of some Geological Observations on the West Coast."

Mr. R. M. JOHNSTON said he was sure that the members had listened with pleasure to Mr. Montgomery's paper, which was very interesting to all geologists. He had travelled on several occasions across the island, and also from North to South, and the igneous rocks had also excited his attention, especially the serpentines and greenstones. He had observed at the Queen and King Rivers rocks similar to those described by Mr. Montgomery. Between that locality and Macquarie Harbour there is an interesting section showing the Upper Silurian rocks, and he had made a large collection of Upper Silurian fossils from that region. The sandstone to which Mr. Montgomery referred occurred in several places between the Queen River and Macquarie Harbour, and at the 14-mile Hut, near the Magnet Range. This sandstone in both localities is closely associated with the serpentines, and the former is very rich in the remains of brachiopods, on account of which this sandstone was originally called by him *Brachipodos Sandstone*. There was also a very important serpentine rock described by Mr. Chas. Gould in the neighbourhood of Ilfracombe which was associated with important iron deposits that failed to be worked successfully owing to

the existence of chromium in a free state. He believed that a similar relationship existed in connection with the rocks near Penguin. The importance of this paper could not be over-estimated, and he hoped the reading of it would lead to new interest being taken in the science leading up to an intelligible account being prepared of the order of rocks from Mount Heemskirk on the west to Patrick's Head on the east.

Mr. CURZON ALLPORT thought that the Secretary (Mr. Morton) was entitled to credit for the pains he took in arranging to have such excellent papers read before the Society. The paper just read brought before them matters of great importance, and he thought such an important subject could not be dealt with upon one evening. He suggested that the consideration of the paper should be adjourned till next meeting, when he would be able to produce some information on matters touched on in the paper, and also photographs of some of the districts on the West Coast.

Mr. ALFRED J. TAYLOR seconded, and the motion was passed.

FERNS.

Mr. R. M. JOHNSTON read some notes on a fern which had been found at George's Bay by Mr. George Hinsby, and was submitted to him by Mr. Leonard Rodway. He described it as belonging to the *Blechnum Cartaligenum*, a species common to Australia, but hitherto unknown in Tasmania.

Mr. A. MORTON read a paper entitled "A complete list of ferns found in Tasmania, with full descriptions of the genera and species," in which he had adopted the elaborate description, as published by Mr. G. Bentham, F.R.S., in his "Flora Australiensis," giving wherever practicable the authorities and localities where the fern is found, also the localities in which the species is found in the other colonies. It was his intention, if possible, to have the list of ferns of Tasmania illustrated.

SIR LAMBERT DOBSON said that all those who took an interest in Botany would be glad to find that a good description of ferns has been compiled. They had this shortly done in Spicer's book, but this would be much more complete, and would be of great interest to all who enjoyed a walk in the bush. Comparatively few knew the number and names of the ferns, but this book would enable them readily to identify the plants. At one time, when Sir Henry Lefroy offered a prize of £5 for the best collection of ferns, he made a collection of 50, comprising every fern he knew of in Tasmania. He was very much pleased to see that Mr. Morton had given his attention to this matter, a pleasure which would be shared in by all those who took an interest in this attractive branch of science.

A GUM TREE GRUB.

Mr. ALFRED J. TAYLOR submitted the branch of a gum tree sent by Mr. Ward, Government Analyst, which had been eaten off by a grub.

HIS EXCELLENCY in moving the usual vote of thanks to those who had read papers, expressed the pleasure with which they had listened to Mr. Montgomery's paper, and hoped they might often receive papers from that gentleman. (Hear, hear.) He was sure that they all agreed that Mr. Morton's work would be of very great interest, and he had no doubt it would assist in cultivating a love of flowers among the rising generation. (Applause).

The vote of thanks was cordially passed, and the meeting adjourned.